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June, 1929

DECIDUOUS-FRUIT INSECT INVESTIGATIONS

A. L. Quaintance, in Charge

The Bureau of Entomology is beginning this season an intensive study of the parasites of the codling moth. At the outset the work will consist chiefly of a survey of the principal apple regions of the United States, to bring up to date and amplify our information regarding the identity, distribution, and relative abundance of the various parasites affecting the codling moth. Some 20 entomologists in various parts of the country, including many of the field men of this division, have agreed to cooperate and send in, for rearing, material collected in their respective sections. Luther Brown has been assigned to the project, which is centered at the field laboratory at Silver Spring, Md.

On May 28 Dr. B. A. Porter attended a conference with entomologists of Virginia, Maryland, and West Virginia, at Charles Town, W. Va., to observe an outbreak of the pistol case bearer, and to discuss methods of control. While this insect is normally of very minor importance, a few orchards in the Shenandoah Valley have developed serious infestations. One orchard in particular has suffered a defoliation averaging fully 50 per cent, in addition to considerable direct injury to the fruit.

A. W. Morrill, Jr., a graduate of the University of California, has been appointed Field Assistant and assigned to duty at Yakima, Wash., where he is assisting E. J. Newcomer in apple-insect investigations.

W. P. Yetter, Jr., a graduate of the Colorado Agricultural College, was appointed Associate Entomologist May 9, and assigned to duty at Vincennes, Ind., where he will carry on investigations of the oriental peach moth.

R. S. Filmer, Junior Entomologist, who was associated with Dr. Campbell in orchard-insecticide investigations, resigned from the Bureau, effective May 2, to accept a fellowship at Rutgers University.

The botanical expedition of West Virginia University, made up of 25 students under the direction of Dr. P. D. Strausbaugh, head of the botanical department of that University, visited the field laboratory at French Creek, W. Va., June 19.

Fred E. Brooks, in charge of the field laboratory at French Creek, W. Va., visited a number of chestnut growers in Pennsylvania, Maryland, Delaware, and Virginia, June 5 to 14, gathering data to use in a study of the chestnut curculio.

Oliver I. Snapp gave an address on control of peach insects before the Rotary Club in Americus, Ga., on May 29. The peach growers of Sumter County, Ga., were guests of the club for that occasion.

H. S. Swingle, who has been engaged in investigations of peach insects at the field laboratory at Fort Valley, Ga., for the past four years, resigned on June 30 to accept a position with the Department of Entomology at Alabama Polytechnic Institute.

Howard Evarts Weed, formerly engaged in entomological work, and known as the inventor of the "Kero Water" spray pump, which was much used in the early days of the San Jose scale, was a recent caller at the Bureau of Entomology. He is now engaged in landscape work in Portland, Oreg.

#### Contributions from the Japanese-Beetle Laboratory

Four large shipments of parasites of the Japanese beetle have been received this month from T. R. Gardner, of the field laboratory at Yokohama, Japan. Two of these shipments consisted of beetle larvae parasitized by the dixiids Prosena siberita and Dexia ventralis. Few people appreciate the work and expense entailed in preparing this material for shipment; for example, in the case of Prosena, the female flies have first to be caught, and are then dissected under a binocular microscope and the minute larvae within the larval sac are placed, two or three in number, on the grubs of the host Popillia. These minute larvae almost immediately enter their host. The grubs are stored in "grub plots" out of doors for the winter, and shipment is made the following spring. Much painstaking labor is thus required, all of which is expensive in time and money. Such a shipment as that received here this spring, consisting of some 20,000 parasitized grubs packed in a minimum of sterile soil, weighs 3,000 pounds, and the express charge from Seattle to Moorestown alone was \$300.11. The other two shipments of parasites consisted of adults of Tipha vernalis. The wasps, which are natives of Korea, are shipped in tins provided with all the necessities of life. The shipments this year arrived in remarkably fine condition. The first, of 5,285 wasps, came through with 86.5 per cent alive and in good condition. The second shipment, which consisted of older adults (some 5,700 in number), arrived with 64.7 per cent alive.

On June 10 Tomosuke Nakashima, Plant Pathologist at the Chosen Agricultural College, Suigen, Korea, visited the laboratory. Mr. Nakashima has been associated with the work of the Department of Agriculture in Korea since 1922. He was particularly interested in the work on parasites.

On June 11 Yoshio Ouchi, who was J. L. King's assistant while the latter was conducting parasite investigations at Suigen, Korea, in 1922, visited the Japanese-beetle Laboratory. He has been a student at Leland Stanford University for the past two years.

On June 26 W. S. Abbott, W. M. Davidson, and D. P. Perry, of the Food, Drug and Insecticide Administration, visited the Japanese-Beetle Laboratory to consult with members of the staff.

On June 26 and 27 Dr. A. L. Quaintance, Associate Chief of the Bureau, visited Moorestown and spent some time in visiting the various divisions of the laboratory and conferring with L. B. Smith. On the morning of the 27th Dr. Quaintance, Mr. Smith, C. H. Hadley, and J. L. King drove to Westbury, Long Island. At Westbury they visited H. C. Hallock, in charge of the Bureau's field laboratory there. Several trips were made into the field to study experimental work and the damage caused by Anomalaorientalis and Asericacastanea.

Prof. J. J. Davis, of Purdue University, spent three days early in June at the laboratory at Moorestown, supervising the collection of material containing Macrocentrus ancylivora. The parasites obtained were for liberation in the peach-growing sections of Indiana that are heavily infested with the oriental peach moth.

W. E. Steenburg, of the Canadian Entomological Branch, and D. M. Daniels, of the New York (Geneva) Agricultural Experiment Station, spent two weeks in June at Moorestown collecting larvae of the oriental peach moth and the strawberry leaf roller, both parasitized with Macrocentrus ancylivora, for shipment to the peach-growing sections of Ontario and New York that are infested with the oriental peach moth.

G. J. Haeussler, of the peach-insect field laboratory at Moorestown, will sail for Europe July 17 to begin a search for foreign parasites of the oriental peach moth.

Dr. H. W. Allen has been transferred from the Japanese-beetle project to peach-insect investigations, and will take charge of the work on parasites of the oriental peach moth at the field laboratory at Moorestown.

A. C. Hodson, from the University of Minnesota, has been appointed Field Assistant, and assigned to work on parasites of the oriental peach moth, at Moorestown.

TAXONOMIC INVESTIGATIONS

Harold Morrison, in Charge

On June 8 Vladimir W. Alpatov, of the University of Moscow, Russia, now a student at Johns Hopkins University, visited the National Museum to examine the National Collection of *Apis*. Accompanying him was Th. Dolzhaasky of the University of Leningrad, Russia, now studying at the California Institute of Technology, at Pasadena, who was interested in seeing the collections of Coccinellidae, especially the North American material of the genus *Coccinella* in the Casey collection.

Andre Seyrig, of Paris, France, a mining engineer and amateur specialist on Ichneumonidae, spent June 11 discussing these insects with R. A. Cushman. He brought as a gift to Mr. Cushman a collection of about 150 specimens of European Ichneumonidae, including cotypes of three of his own species.

J. A. G. Rehn, of the Philadelphia Academy of Natural Sciences, visited the Taxonomic Unit June 13 to confer with A. N. Caudell.

On June 12 G. J. Haeussler, of the field laboratory for the study of peach insects, at Moorestown, N. J., called at the National Museum to consult Bureau specialists about hymenopterous parasites of the oriental peach moth. He was on his way to the field laboratory at Hyères, Var, France, maintained for the study of parasites of European insect pests introduced into the United States.

On June 14 Dr. D. D. Hendrickson, a physician of Middletown, N. J., and Winterhaven, Fla., discussed the Mediterranean fruit fly with C. T. Greene, dipterist in this unit.

Prof. M. A. Stewart, of Rice Institute, Houston, Tex., spent June 14 and 15 in the National Museum studying certain types of Siphonaptera, as a step in his work of preparing a revision of the North American species.

On June 17 Dr. Ruth Marshall, Professor of Biology, Rockford College, Rockford, Ill., called at the Museum to examine types of water mites. She was on her way to Europe, where she will spend the summer in study.

Carl Heinrich, of the Taxonomic Unit, returned June 19 from a trip to Guatemala and Honduras, where he went to investigate the reported occurrence of the European corn borer.

Dr. E. A. Chapin visited the Brooklyn Museum, Brooklyn, N. Y., June 27 and examined the collection of beetles there. He spent June 28 at the American Museum of Natural History in New York City, where he also examined beetles, particularly the Scarabaeidae from the West Indies.

On June 29 Allen S. Nicolay, of Upper Montclair, N. J., consulted with W. S. Fisher in regard to certain Coleoptera, especially those of the family Buprestidae.

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#### INVESTIGATIONS OF INSECTS AFFECTING MAN AND ANIMALS

F. C. Bishopp, in Charge

About June 20 D. C. Parman returned to the field laboratory at Uvalde, Tex., from the Coachella Valley, Calif., where he has been carrying on investigations of the eye gnat (*Hippelates*).

D. G. Hall, who recently received the degree of Master of Science at Kansas State Agricultural College, has been appointed Assistant Entomologist, effective June 10, and has been assigned to investigations of the eye gnat at Coachella, Calif.

Dr. W. V. King returned to the field laboratory at Mound, La., June 15, after a furlough of six months, during which he conducted studies of the *Anopheles* mosquitoes in the Philippines under the auspices of the International Health Division of the Rockefeller Foundation.

On June 11 F. C. Bishopp and H. S. Peters started on a trip for reconnaissance of the cattle grub, extending from Washington through Pennsylvania, southern New York, western Connecticut, western Massachusetts, Vermont, and New Hampshire. Some experiments with these insects were performed in western Vermont. Mr. Bishopp returned to Washington June 29. J. L. Webb joined Mr. Peters at Burlington, Vt., June 30, to continue the work under way there.

On June 19 J. L. Webb visited Florence, S. C., on business relating to work on the boll weevil.

The Florida State Board of Health has applied to the Bureau of Entomology to have T. E. McNeil continue his studies on the biology and control of mosquitoes which he has been carrying on at Zellwood, Fla., since last March. Mr. McNeil will continue this work for at least several weeks longer.

H. M. Brundrett, Professor of Horticulture and Entomology at John Tarleton College, Stephenville, Tex., has been given a temporary appointment to continue investigations of fly sprays and spraying apparatus, to which he has given some attention during the past two summers. Mr. Brundrett will make his headquarters at the field laboratory at Dallas, Tex.

## FOREST-INSECT INVESTIGATIONS

F. C. Craighead, in Charge

Dr. Craighead spent a few days in the middle of June at the forest-insect field laboratory at Asheville, N. C., consulting with J. A. Beal. Mr. Beal has been transferred to a new forest-insect field laboratory which is being established at Portland, Oreg., with F. P. Keen in charge. R. A. St. George will assume responsibility for activities at the Asheville laboratory.

A total of 12 field assistants have been appointed for the summer from various forest schools in different parts of the United States. These men are assisting on field projects in Montana, Idaho, California, Oregon, Nebraska, Minnesota, Massachusetts and North Carolina. Several of them have been with the Division of Forest Insects one or two seasons previously.

L. G. Baumhofer, who was stationed at Coeur d'Alene, Idaho, during the winter, has been transferred to Halsey, Nebr., where he is working on the introduction of parasites of the pine tip moth in the pine plantations in the vicinity of that place.

R. E. Balch, a field assistant who has been with this division the last two summers, reported for duty early in June and was assigned for that month to the experiments in airplane dusting which are being conducted by Dr. J. M. Swaine in Ontario, Canada. At the completion of this work Mr. Balch will report in Montana, where he will study problems of defoliation.

On June 17 Dr. T. E. Snyder returned to Washington, D. C., after giving a course in biological entomology at the Department of Biology, University of Chicago, from April 1 to June 12.

William Middleton attended a conference at the Northeastern Forest Experiment Station, Amherst, Mass., on June 3; and on June 10 and 11, with Dr. Carl Hartley, of the Division of Forest Pathology, Bureau of Plant Industry, made an examination of some areas of dying pine in Maryland and New Jersey.

### Contributions from the Gipsy-Moth Laboratory

The following college students have been given employment at the Gipsy Moth Laboratory, for the summer season, reporting for duty in June: J. T. Bingham, Ohio State University; J. L. Gardiner, University of Maryland; C. B. Green, Boston University; and S. C. Billings and A. J. Warren, Massachusetts Agricultural College.

Visitors at the Gipsy Moth Laboratory in June included R. E. Balch, Forest Insect Investigations, Coeur d'Alene, Idaho, June 6; W. V. Tower, San Juan, Porto Rico, June 10; and Ivan S. Jitlov, Forester, Short Hills, N. J., June 26.

D. F. Barnes, of the Gipsy Moth Laboratory, left for Canada on June 23, to spend several days observing experiments in airplane dusting, particularly for the spruce bud worm, conducted by the Forest Insects Division, Entomological Branch, Dominion of Canada, at Westtree, Ontario, and Franquelin, Quebec.

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#### BEE CULTURE INVESTIGATIONS

James I. Hambleton, In Charge

L. M. Bertholf, Professor of Biology, Western Maryland College, has returned to the laboratory to continue his work on reactions to light in the honeybee. He is devoting his attention this summer mainly to the response of bees to ultra-violet light and its physiological effect on them.

Mary L. White, who has been employed at the laboratory for several summers, has been reappointed temporary Field Assistant, to assist in the work on bee diseases. Willis R. Doyle also has been appointed temporary Field Assistant.

The Southern States Bee Culture Field Station, at Baton Rouge, La., is very grateful to receive as a gift practically complete files of the American Bee Journal and Gleanings in Bee Culture, from Prof. H. B. Parks, Apiculturist at the Texas Agricultural Experiment Station, San Antonio. This addition is a very welcome one, and will form the nucleus for a bee-keeping library which will be available not only to the scientific workers in apiculture in the Southern States but to beekeepers as well.

Visitors at the laboratory in June included Henry Brown, of Cape May Court House, N. J., one of the most prominent commercial beekeepers in New Jersey, and Aubrey V. Smith, of Phoenix, Ariz., also a prominent commercial beekeeper.

The Press Service announced on May 31 that arrangements had been made to include chemical tests of honey where official United States certificates of grade are desired. At the present time these tests will be made by the food-products inspection service of the Bureau of Agricultural Economics. This arrangement does not apply to samples which are graded, without charge, merely for color, but to lots which are to have certificates of inspection. The press release should be consulted for further details.

TRUCK-CROP INSECT INVESTIGATIONS

J. E. Graf, in Charge

W. E. Stone, formerly in charge of the celery leaf-tyer investigations at Sanford, Fla., has been temporarily detailed to the Plant Quarantine and Control Administration to assist in organizing the scouting for wild hosts of the Mediterranean fruit fly.

Dr. N. F. Howard, Columbus, Ohio, visited Norfolk, Va., June 5, to inspect bean-beetle experimental plots and to discuss the control of the Mexican bean beetle in that section with L. W. Brannon. He visited Washington June 6.

The summer laboratory of the pea-aphid project at Columbus, Wis., was opened on June 10. J. E. Dudley, Jr., will be in charge.

B. J. Landis arrived at Mexico City on June 13, where he will investigate the biology and host relationships of the parasites of the Mexican bean beetle.

W. J. Reid, Jr., Chadbourn, N. C., has been temporarily detailed to Columbus, Ohio, where he will assist Dr. D. M. DeLong in the investigation of the potato leafhopper on beans. Mr. Reid arrived at Columbus on June 20.

The following employees attended the meetings of the Pacific Slope Branch of the American Association of Economic Entomologists at Berkeley, Calif., June 20 to 21: R. E. Campbell, Alhambra, Calif., J. C. Elmore, Garden Grove, Calif., and E. W. Davis, Richfield, Utah.

L. W. Brannon, Norfolk, Va., N. F. Howard, Columbus, Ohio, and W. H. White, Washington, D. C., accompanied by entomologists from Maryland and New Jersey, and others interested in the control of the bean beetle, inspected bean fields on the Eastern Shore of Maryland June 27 and 28. This inspection trip was conducted by Prof. E. N. Cory, State Entomologist of Maryland, and had for its principal object the gathering of information on the results obtained by the commercial growers on the control of the bean beetle under conditions prevailing in this large commercial area.

O. A. Hills and J. C. Chamberlin have been appointed as Junior and Associate Entomologists, respectively, the former to serve at Hermiston, Oreg., and the latter at Palo Alto, Calif.

The following appointments as field assistants have been made: L. Jones, Twin Falls, Idaho; F. W. Fletcher, D. M. DeLong, D. F. Miller, and R. W. Brubaker, Columbus, Ohio; E. C. Herber and H. Rosen, Philadelphia, Pa.; E. W. Jones, Walla Walla, Wash.; J. R. Thomson, Chadbourn, N. C.; V. E. Romney, State College, N. M.; V. F. Kent, Estancia, N. M.; J. F. Roe, T. E. Bronson, and J. H. Lilly, Madison, Wis.; and O. W. Rosewall, Baton Rouge, La.

CEREAL AND FORAGE INSECT INVESTIGATIONS

W. H. Larrimer, in Charge

About the middle of June Prof. Chas. J. Sorenson, of the Utah Agricultural College, at Logan, visited the field laboratory at Tempe, Ariz., and conferred with the men there regarding investigations of the clover and alfalfa seed chalcis fly which are being carried on in cooperation with the State of Utah.

W. J. Phillips, in charge of the field laboratory at Charlottesville, Va., spent June 27 in the Washington office.

W. R. Walton left Washington May 3 for a tour of inspection of the southern and southwestern field laboratories of the division. He visited New Orleans, Houma, and Crowley, La., and Beaumont and San Antonio, Tex. At Albuquerque, N. M., he was joined by V. L. Wildermuth and J. C. Frankenfeld, of the field laboratory at Tempe, Ariz. The party visited the range-caterpillar territory in northeastern New Mexico, where the eggs of the insect were found to be present in extreme numbers. After completing plans for the summer work there, an inspection was made of the summer cattle ranges at the higher elevations. Messrs. Wildermuth and Walton also visited several parts of New Mexico and Arizona, to examine and discuss the infestation by the southwestern corn borer. Among the regions examined was the area lying between Phoenix and Tucson, Ariz., and extending to the Mexican border. E. G. Davis, of the field laboratory at Tempe, assisted in this survey. Mr. Walton returned to Washington June 12.

Temporary appointments were given in June to Adam M. Celaya, at Tempe, Ariz., Clyde B. Conger, Sacramento, Calif., James B. Gahan, Webster Groves, Mo., and Richard A. Gaskins, Richmond, Va.

Carl Heinrich, specialist in Lepidoptera of the Taxonomic Unit of the Bureau, who left Washington on April 9 to investigate the occurrence of the European corn borer in Guatemala, as reported by Cosmio Riccio, returned June 19 and submitted his report. Mr. Heinrich was fortunate enough to be able to examine corn growing in the identical field in the neighborhood of Antigua where Pyrausta nubilalis Hübn. was reported. No European corn borer was found, but there was an injurious abundance of the Central American corn borer, Diatraea lineolata Walker. Adult moths were reared from this material and accurately determined as this species.

L. H. Worthley, in charge of corn-borer control, was in Washington on June 27 to consult with various officials regarding plans for the annual survey of infestation by the European corn borer.

## COTTON INSECT INVESTIGATIONS

B. R. Coad, in Charge

In June B. R. Coad visited the State Experiment Station at College Station, Tex., and conferred with Dr. F. L. Thomas relative to plans for investigation of the pink bollworm and cotton bollworm. An arrangement has now been perfected by which the bollworm investigations in Texas will be handled on a cooperative basis similar to that for the work on the pink bollworm. Under this system the investigations will be carried on jointly by means of funds provided by the State of Texas and the Bureau of Entomology, with Dr. Thomas in direct supervision of the field work.

In the latter part of June B. R. Coad and Messrs. McGinley, Payne, and Long took two airplanes to Dallas, Tex., at the request of the Division of Agricultural Engineering of the Department of Agriculture, to show methods of airplane dusting to the agricultural engineers then attending the annual meeting of the American Association of Agricultural Engineers.

Early in June G. C. McGinley was appointed airplane pilot and reported for duty.

The following were appointed temporary field assistants, and reported for duty in June: At Tallulah, La., J. C. Sherwin, K. H. Smith, J. D. Williamson, Syrus Conn, D. H. Ratcliff, S. D. Sumerford, L. W. Noble, Josh Randolph, H. D. Tate, V. L. Pearson, D. G. Long, L. B. Reed, A. B. Beavers, L. D. Christenson, B. C. Stephenson, and L. H. Subblefield; at Florence, S. C., W. A. Brunson, M. R. Buffkin, W. J. Moore, and E. V. Welsh; and at Tucson, Ariz., J. A. Downs.

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## TROPICAL, SUBTROPICAL, AND ORNAMENTAL PLANT INSECT INVESTIGATIONS

A. C. Baker, in Charge

Dr. A. C. Baker returned June 24 to his temporary headquarters at Orlando, Fla., after spending a week in Washington. While here he conferred with various persons in the Bureau of Entomology and the Plant Quarantine and Control Administration on the research work on the Mediterranean fruit fly which he is now conducting in Florida.

Since about the middle of May Harold Lewis, of the California Fruit Growers' Exchange, has been at the field laboratory at Lindsay, Calif., familiarizing himself with the problem of the citrus thrips and assisting E. A. McGregor, in charge, in the work on that insect.

LIBRARY

Mabel Colcord, Librarian

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Rapports scientifiques entre le vol de l'abeille et la navigation aérienne . . . 46 p., illus. Bruxelles, Impr. des Travaux Publics, 1925. (At head of title: Exposition d'Ixelles (18-19-20 Octobre 1924) concours 156. Principaux mémoires du Dr. Amans sur la loco-motion aérienne et aquatique: p. 45-46.)

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Bahr, Fritz.

Fritz Bahr's commercial floriculture. A practical manual for the retail grower. Ed. 3, rev. 615 p., illus. New York, A. T. De la Mare Company, Inc., Feb., 1929.

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Preliminary experiments with dusting and spraying against insect pests of cotton. 11 p., pl., 2 diagrs. Cairo, Government Press, 1928. (Egypt. Ministry of Agriculture. Tech. and Sci. Service, Bul. No. 77.) (Plant protection section. Entomological research division.)

Boselli, F. B.

Studi sugli Psyllidi Homoptera: Psyllidae o Chermidae, I-III. Bol. Lab. di Zool. Gen. e Agr. R. Ist. Sup. Agr. Portici, v. 21, p. 218-263, Jan. 24, 1929, and v. 22, p. 204-218, Apr. 4, 1929.

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Check list of the Australian Buprestidae. Australian Zoologist, v. 5, pt. 4, p. 265-303, pl. 31-32, March 24, 1929.

Christophers, S. R., and Covell, G.

How to do a malaria survey. 146 p., illus. Calcutta, Central Publication Branch, 1928. (Health Bul. No. 14, Malaria Bul. No. 6.)

Eggers, Friedrich.

Die stiftführenden Sinnesorgane; Morphologie und Physiologie der chordotalen und der tymalen Sinnesapparate der Insekten . . . 353 p., illus. Berlin, Borntraeger, 1928. (Zoologische Bausteine. . . hrsg. Paul Schulze, Bd. 2, Hft. 1.) (Literaturverzeichnis, p. 348-353.)

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A manual of external parasites. 225 p., illus. Springfield, Ill., and Baltimore, Md., Charles C. Thomas, 1929. (References at ends of chapters.)

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Common garden pests. What they are and how to control them. 150 p., illus. Des Moines, Better Homes and Gardens, 1929.

Haupt, H.

Homoptera Palestinae I. 41 p. Tel-Aviv, Palestine, Aug., 1927. (Zionist Organisation Inst. Agr. & Nat. Hist. Agr. Expt. Station. Bul. 8.)



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Ingram, Alexander, and Meillon, Botha de.

A mosquito survey of certain parts of South Africa with special reference to the carriers of malaria and their control. Parts 1-2 (170 p.). (So. African Inst. for Med. Research. Pubs. No. XXII, Oct., 1927, and No. XXIII, Jan., 1929.)

Meisel, Max.

A bibliography of American natural history . . . v. 3. The institutions founded or organized between 1845 and 1865. Bibliography of books, Chronological tables, Index of authors and institutions, Addenda to Volume I. 749 p., Brooklyn, N. Y., Premier Publishing Co., 1929.

Misra, C. S.

The cultivation of lac in the plains of India (*Laccifer lacea*, Kerr). 116 p., illus., pl. Calcutta, Central Publication Branch, 1929. (Agr. Research Inst. Pusa, Bul. 185.) (This bulletin replaces Nos. 28 and 142.)

Mordwilko, A. K.

Food plant catalogue of the Aphididae of U. S. S. R. 100 p., illus. Leningrad, 1929. (Leningrad State Inst. Applied Agron. Bureau of Applied Entomology. Works of Applied Entomology, v. 14, No. 1.)

Sawyer, W. H., Jr.

Observations on some entomogenous members of the Entomophthoraceae in artificial culture. American Journal of Botany, v. 16, No. 2, p. 87-121, pl. IX-XII, Feb., 1929. (Literature cited, p. 118-119.)

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